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## **PART 4**

### **Chapter 26**

#### **Mobile learning in the majority world: A critique of the GSMA**

##### **position**

**Niall Winters**

### **Introduction**

The interest in mobile learning in the majority world (this term was coined by Bangladeshi photographer Shahidul Alam, to refer to what had been called the ‘Global South’ or ‘developing world’. Majority world “defines the community in terms of what it is, rather than what it lacks.” (See: [http://www.appropedia.org/Majority\\_world](http://www.appropedia.org/Majority_world)) is understandable.. The figures alone show why: Asia and Africa are the world’s two largest mobile phone markets. Asia Pacific has over 3 billion mobile connections (GSMA-Kearney, 2011a) and Africa has 620m (GSMA-Kearney, 2011b). With such high numbers and with continued growth predicted in these regions, a sensible question to ask is how can mobile technologies support learning and education? However, depending on which literature one reads, and the community one comes from – academia, industry or development – very different answers to this question emerge.

In this chapter, we investigate the position taken by industry in-depth by focusing on two recent reports published by the GSMA:

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- Transforming learning through mEducation (McKinsey-GSMA, 2012)
- mLearning: A platform for educational opportunities at the Base of the Pyramid (GSMA, 2010)

The GSMA was chosen because it is the representative body of the mobile telecommunications industry worldwide. In their own words, they have “taken a leadership role on behalf of mobile network operators (MNOs) and vendors, in understanding how mLearning is being used today and its potential for the future” (GSMA, 2010, p.5) and their 2010 report focuses directly on “ the current landscape of mLearning in the developing world to assess the ways in which mobile devices are being used as an intervention in learning and to consider the future of this powerful tool.” (ibid) The 2012 report with McKinsey is broader in scope, focusing on their understanding of mobile technology in education worldwide.

These particular GSMA documents were chosen primarily for three reasons. First, they encapsulate the state-of-the-art envisaged by the GSMA and McKinsey and describe what they view as key mobile learning projects. They are important in understanding how the mobile telecommunications industry believes they can support mobile learning. Second, mobile learning for development raises unique research challenges that very often require high levels of interdisciplinary knowledge to solve. Therefore, academia needs to better understand the perspective of industry in order to support any potential collaboration and build bridges across the domains of expertise. This position is echoed by the GSMA:

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MNOs and vendors have the networks and hardware to deliver content, and experience developing sustainable and commercial enterprises around this.

However, pedagogues, researchers, content providers and governments all have vital roles to play, ensuring relevance of learning materials and best practices in delivering educational resources via mobile devices. (GSMA, 2010, p. 30)

However, interdisciplinary engagement comes with its own challenges and implied assumptions. These must be well understood and conceptualised in order to provide a strong underpinning towards any joint public-private endeavour. While there is not space in this chapter to deal with the complexities of interdisciplinary practices in-depth (for a discussion of the issues within a TEL context, see: Winters & Mor, 2008) one very important issue for mobile learning in the majority world is the *nature* of the public-private relationship. This brings us to the third reason for picking the two documents, namely that they are a concrete manifestation of what Kenway et al. (1996) describe as a “markets/education/technology triad [that] has the capacity significantly to alter the ways in which education is produced, conducted and consumed” (p. 322).

Simply put such triads break down the traditional boundaries between the public and private, “informed mainly by market values.” In this way, analysis of mobile learning in the majority world provides an insight into the way technology enhanced learning is approached and framed by key players in the private sector and how they view the role of public organisations.

The exploration of the private sector (i.e. the GSMA and McKinsey) position on these

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issues within the two documents is framed by two key questions:

- What is the justification for mobile learning?
- How is mobile learning positioned conceptually?

Investigation of the justification and conceptualisation of mobile learning is important for two reasons. First, it provides an increased understanding of the GSMA's educational rationale for engaging in mobile learning. It allows for judgement of the seriousness placed by the GSMA on educational approaches and theories and the extent to which they draw on the mobile learning research undertaken by educational researchers over the past 10 years or so. Second, the private sector – including international telecoms organisations – fund and support many TEL projects in the majority world and these projects are viewed as 'setting the standard' for others to follow. However, to do so often requires a large resource commitment by, for example, Ministries of Education, and therefore any work that seeks a better insight into the justification and conceptualisation issues as understood by the private sector is worthwhile for critiquing such investment.

### **What is the justification for mobile learning?**

The justification for mobile learning in the two documents is more complex than it seems at first reading. Our analysis provides three main underlying themes: (i) the relationship to formal education, (ii) the nature of innovation and (iii) developing a market.

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### **The relationship to formal education**

Formal education provides the key underpinning to the justification of mobile learning in the documents, but in a somewhat unexpected manner. There is a dichotomy between how it is viewed currently and the role it can play in the future. These two views provide very different justifying roles. In brief, the current state of the formal education system is shown to be weak. In contrast, as we will see later, some of the pedagogical ideas discussed for the future of mobile learning will rely on a strong formal educational system with a central role for teachers as designers of learning.

The weakness of the formal education system is highlighted by the GSMA as a key rationale for the implementation of mobile learning, drawing on work by international agencies such as UNESCO. To take just two examples of the GSMA's interpretation of this work:

Adhesion to the national or local curriculum is especially a problem in developing countries where often the educational resources are outdated due to a lack of funding and availability. (GSMA, 2010, p. 9)

Many schools do not provide the management support, resources or tools that teachers need to carry out their job. (GSMA, 2010, p.10)

The high numbers of students not in formal education is also highlighted. For example, the McKinsey-GSMA report states:

Enabling and facilitating access to education is a key challenge in education today. For example, almost 70 million children ages 6 to 12 are not enrolled in

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schools, 60 million of them in developing countries. Access to education remains a critical problem for reasons ranging from insufficient school coverage and low household incomes to limitations in the quality of locally available materials.

Thus, one argument being made for mobile learning is that it can overcome weaknesses in the formal education. In particular, this can be achieved by using mobile networks to *provide access to educational content for marginalised learners*. In contrast to the formal education system, the geographical reach of these networks is emphasised. Chris Locke, Managing Director of the GSMA Development Fund puts it as follows:

[W]e feel that mobile has a unique role to play in reaching those who are outside of the scope of traditional schooling, and yet who will benefit immensely from access to simple educational programmes. (GSMA, 2010, p.2)

Moreover, clear gaps in the formal education system provide an opportunity for mobile learning to benefit marginalised learners through the provision of learning opportunities:

It is often debated that mLearning should only be seen as a final resort for learning or teaching, however, for many people it is a way to incorporate education into their lives when they may have previously been denied the opportunity, therefore becoming an enhancement to their livelihood. (GSMA, 2010, p.13)

By directly addressing the 'access issue', mobile learning is viewed as having a

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potentially transformative affect on the educational system and on the learning opportunities provided to those most in need. While highlighting the issue of access to educational opportunities is laudable, the way in which it is presented is problematic as there are tensions and trade-offs raised, the consequences of which are not currently clear.

First, access is not well conceptualised. Put simply, access is about much more than the provision of content. To frame it in this way misses much of the complexity of what education and learning are about and how they are to be supported. Even if we were to focus on content development, this requires the skills of teachers, which in turn relies on a strong education system, including teacher training and classroom experience.

Therefore, framing mobile learning as an adjunct to the formal system does not seem to be sustainable. A more beneficial approach would involve exploration of the intricacies of working with the formal system, not outside of it. This is true particularly where learning designs are more complex than those focused on information dissemination.

Indeed, there is much education research from which to draw on in conceptualising access in relation to formal education. To take just one example, since 2006 the DFID-funded Consortium for Research on Education Access, Transitions and Equity (CREATE) has worked to understand the different dimensions of access, with a focus on meaningful learning, sustained access and equitable access provision. In line with Millennium Development Goal 3, Achieve Universal Primary Education, they do not de-couple content from formal schooling. Instead access is conceptualised to include the following five aspects:

- Secure enrolment and regular attendance;

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- Progression through grades at appropriate ages;
  - Meaningful learning which has utility;
  - Reasonable chances of transition to lower secondary grades, especially where these are within the basic education cycle;
  - More rather than less equitable opportunities to learn for children from poorer households, especially girls, with less variation in quality between schools
- (Lewin, 2007, p. 21)

More work is needed to investigate the ways in which mobile learning can help address the above issue through appropriate implementation strategies: the idea that access to content via a mobile phone is an end in and of itself is too limiting. The complexity of this implementation challenge when working within existing structures is highlighted by a recent UNESCO review of mobile learning, which found that:

In spite of the potential of mobile learning to help achieve UPE [Universal Primary Education], research for this review found little evidence of the use of mobile phones to expand access to formal primary schooling for children who are not in school. (UNESCO, 2012, p.21)

This serves to illustrate the difficulties in addressing the needs of marginalised learners appropriately. However, working within existing educational structures is not the only challenge. If mobile learning is to work across the formal and informal sectors, the complexities of the lives of those in marginalised communities must be given very

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focused consideration. Again, an example will help demonstrate the everyday difficulties faced the most marginalised. A recent cross-country analysis from Kenya, Ghana and Mozambique by the Institute of Education and Action Aid on the Stop Violence Against Girls in School (SVAGS) project found that:

Girls in the three project districts experience multiple forms of violence, with 86% of girls in the project area in Kenya, 82% in Ghana, and 66% in Mozambique reporting some form of violence in the past 12 months. (Parkes and Heslop, 2011, p. 11)

They also note the impact of poverty on completion rates for girls:

While increasing numbers of younger girls are enrolling in the project schools, in the later years of primary school girls' enrolment drops, most markedly in the Kenyan schools where the number of girls in the last class of primary school in 2009 was almost ten times lower than in the first year. Poverty intersects with gendered inequalities in creating barriers to schooling for girls, with girls missing out on schooling because of household chores and childcare, farm work, inability to pay school fees, early pregnancy and marriage. In the schools themselves, particularly in the project areas in Kenya and Ghana, there is a shortage of well qualified women in teaching and management positions, and gendered attitudes favouring boys, gendered division of labour, and poor conditions and resources hinder girls' capacity to enjoy, achieve and thrive in school. (ibid)

Thus, the idea that access can be addressed through content delivery alone seems

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somewhat idealistic. Far more research is needed into how mobile learning activities can be designed to support marginalised learners and how the context of their lives affects their learning opportunities. The depth of this challenge should not be underestimated.

### **The nature of innovation**

The second key underpinning justification for mobile learning is its innovative nature. Primarily, the reports focus on technical innovation. Mobile devices and networks are viewed as the conduit through which access can be delivered. For example, the McKinsey-GSMA report states:

Any portable device, such as a tablet, laptop or mobile phone, that provides access to educational content through mobile connectivity (2G, 3G, or 4G complemented by mobile-based Wi-Fi) can be a tool for mEducation. (p. 4)

In particular, this “innovative” use of mobile technology is seen as having great potential because it has worked on other sectors, with the conduit idea again clearly evident:

We have seen over the past years how mobile is playing an increasing role in addressing development issues – such as providing access to banking, to health information, to agricultural services reaching rural farmers. The scale and ubiquity of mobile networks means they are often the only infrastructure in remote and rural areas, and the mobile industry has shown its innovative approaches to solving these needs using mobile technology. (GSMA, 2010, p.2)

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This success provides one justification for exploring opportunities in education, with the McKinsey-GSMA report noting:

Mobile operators can seize this exciting opportunity and shape the market if they understand how new technologies and initiatives will impact education around the world—and if they can develop smart strategies and implement them quickly. (p. 4)

It is interesting to note the focus on understanding how technologies can ‘impact’ on education. We have seen one instantiation of this effort to “shape the market” earlier re: the provision of content but also noted the broader issues that were not addressed. As such, the provision of access required little technical or pedagogical innovation. It is no surprise then that it was viewed as not needing to be linked in any way to the formal education system: provision of content is simple, hence can be done outside of the formal education system. Here, we add to this critique by noting the provision of content on mobile phone is neither pedagogically nor technically innovative. From a conceptual perspective, focusing on provision positions mobile learning in a place where research was more than 10 years ago. A key critique that moved the field forward was from Roschelle (2003), who made what still remains today, a compelling argument for “unlocking” the potential of mobile device for learning. His work resulted in part from his concern that technology in education is often blinded by complex views of technology without placing sufficient emphasis on social practices. Instead, he makes a strong argument for the identification of the “simple things that technology does extremely and uniquely well”, i.e. their affordances, and the need to “understand the social practices by which those new affordances become powerful educational

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interventions.” However, while mobile phones are very good at providing access to content, in line with Roschelle’s first point, it is less clear (as we have seen) how this can become a powerful educational intervention, particularly outside of the support offered by formal schooling. However, it is reasonable to ask what other learning activities (beyond access) are promoted, i.e. what is the nature of pedagogical innovation in the documents? Pedagogical innovation is premised primarily around personalisation.

### **Personalisation**

The potential for mobile learning to support personalisation is discussed in different forms:

mLearning provides a personal way of accessing educational content with the ability to build an extensive learning community. Activities can be tailored to meet the individual user needs. (GSMA, 2010, p. 12)

This simple version of personalisation can be interpreted as meaning that educational material is always available to the learner. However, to provide someone with a personal way to learn where activities “can be tailored to meet the individual user needs” implies the need to draw on the personalisation literature within TEL. This is even more true when personalisation is linked to adaptivity:

It personalizes education solutions for individual learners, helping educators customize the teaching process, using software and interactive media that adapt levels of difficulty to individual students’ understanding and pace. (McKinsey-GSMA, p. 4)

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This is a far more complex issue, requiring design and technical expertise that enables educational software to be tailored in real-time to a learner's needs. The resource required to design, develop and implement such an approach is vast and would certainly mean an investment in education beyond what is achievable currently for most Ministries of Education in the majority world.

Personalisation is built upon to promote mobile learning as a means to customise context and support learner collaboration:

Educators can now assess students' understanding using wireless assessments on handheld devices. These provide real-time updates on individual student progress, allowing educators to track class progress and tailor instruction for students requiring remedial support. (McKinsey-GSMA, 2012, p.15)

With mobile technology, students can source or create their own content, share it with peers, share different learning paths and evolve better answers through collaboration. (McKinsey-GSMA, 2012, p. 8)

While these are technically innovative, entire communities of TEL researchers work in the Artificial Intelligence in Education (AIED) and Computer Supported Collaborative Learning (CSCL) areas and each has their own respective conferences and journals.

While it is indeed true that mobile learning can have a role to play in each of these areas, the level of expertise required to design, develop and implement such interventions is large. Again, this requires a strong formal education system to support

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the development of pedagogically and technically innovative interventions. This is a massive challenge for the majority world (and I would add in the UK too) and more research is needed to explore ways to better support the development of innovative mobile learning approaches (including personalisation) by teachers working as learning designers (Laurillard, 2012). Drawing on Roschelle (2003) here, setting the agenda for mobile learning in the majority world should be less about a retrospective rationalisation of its use to address current problems (e.g. providing access to content) and more about looking at social practices, the affordances of mobile devices and ecosystems to determine how we can address current weaknesses in a fundamental manner.

### **Mobile learning as a market opportunity**

The third main justification for mobile learning is as a market opportunity, with the McKinsey- GSMA report stating that “mEducation is poised to become a USD 70 billion market by 2020” (p. 4), leading them to classify more than hundred commercial mobile learning offerings into seven products types. While not all are suitable for mobile learning in the majority world, the GSMA do frame marginalised communities lack of access to education as a serious business opportunity:

[W]ith 98% of the world’s illiterate or semi-literate population residing in developing countries, where access to schools and resource materials is at a minimum, such regions present the greatest areas of need. These markets therefore represent the greatest opportunities for mLearning programmes and products. (GSMA, 2010, p.5)

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However, in order to achieve such targets the GSMA note that “a sustainable and robust business case” (GSMA, 2010, p.5) remains to be developed. While from a corporate point of view the discussion of business opportunities is appropriate, from an education perspective, it raises questions as to whether the ideals of access for marginalised communities can be addressed while seeking a strong business case. As noted by the GSMA “[c]ontent and the provision of it costs money and it is not yet clear who should pay – governments, local authorities, the consumer or other.” (GSMA, 2010, p. 24). This tension is a serious issue of concern when the potential beneficiaries of mobile learning are determined by their ability to pay:

There is greater and more immediate value in vocational forms of mLearning where the end user is paying for the service. Health education, language lessons and general life skills are seen by mobile customers as valuable and worth paying for. (GSMA, 2010, p. 30)

This should raise serious concerns about the agenda of mobile operators if, as educators, we are concerned about building long term and sustainable access to educational opportunities. What about subjects that do not fit with the above agenda, communities who do not fit the business model or subjects that are seen by a small minority of “mobile customers as valuable”? The GSMA’s stated position of providing access to marginalised communities takes on a very different motivation when the “value” of mobile learning is a market-driven one or when the subjects that are deemed worthy of support are those that fit neatly within a corporate social responsibility agenda. In addition, if market values is the overarching concern, then it will do little to address access at secondary level as “[a]ccess to secondary schooling is very strongly

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household-income-related in all poor countries” (Lewin, 2007, p. 8). Indeed this is recognised by the GSMA in discussions regarding who will pay for their services:

The global goal set by the UN Millennium Development Goals is for universal primary education for all, however who pays for education beyond this point is widely debated and varies from one country or region to the next. (GSMA, 2010, p. 24)

Such an agenda is a good exemplar of Kenway et al’s (1994) triad and their concern with postmodern forms of education:

“Modern forms can be identified as those which are primarily state funded, identified also as public, institutionalized, formal, largely print-based, mass-orientated, steered and serviced largely by education professionals and informed mainly by educational values. In contrast, postmodern forms can be categorized as those being produced and consumed outside the institutions of the state; identified as private, market funded, national and international, de-institutionalized, de-territorialized, informal, largely image-based, niche-orientated, steered and serviced mainly by commercial, cultural and technology professionals and informed mainly by market values.” (p. 327)

On the other hand, the GSMA report also promotes the notion of taking a hands-off approach and “conducting ‘business as usual’, implementing and growing their network coverage, they are increasing the opportunities for those in rural and ultra regions to ‘get connected’ and use mLearning services, thus increasing customer base and revenues”

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(GSMA, 2010, p. 30). This could be interpreted as letting educators, practitioners and other interested parties develop mobile learning interventions, who would then determine their own connectivity needs.

### **How is mobile learning positioned conceptually?**

Overall, the reports do not engage in any significant way with recent mobile learning literature on how mobile learning is conceptualised. Mobile learning is considered to be learning that happens “anywhere, anytime” in line with very early research work in the area (e.g. Quinn, 2000). It is not surprising then that mobile learning is conceptualised in a techno-centric manner:

We define mEducation as technology-enabled learning solutions available to learners anytime, anywhere. Any portable device, such as a tablet, laptop or mobile phone, that provides access to educational content through mobile connectivity (2G, 3G, or 4G complemented by mobile-based Wi-Fi) can be a tool for mEducation. (McKinsey- GSMA, 2012, p. 4)

mLearning is the ability to access educational resources, tools and materials at anytime from anywhere, using a mobile device. (GSMA, 2010, p.6)

Many case studies in the GSMA report are in line with this position. To take just one example, as part of the Millennium Villages project, Ericsson have developed “mLearning modules” which Community Health Workers can download to their mobile phones. While there is no doubt that having access to this content is welcome, the benefits of having such content on a low-end mobile phone (rather than a book, for

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example) are not immediately clear. No particular affordances of mobile technologies are being leverage in this case that enables learning to happen in new ways. However, some cases proved more successful because they addressed a real need: Janala from the BBC World Service is one example. This service provides 3-minute English language lessons and associated text-based content to Bangladeshis on their mobile phones.

Mobile learning research began with an initial focus on mobile technologies and their ability to support learning “anytime, anyplace, anywhere”. From there, it has moved to a more complex view involving the learner, the technology and the context. Theories of mobile learning have been developed (see for example, Sharples, Taylor and Vavoula (2007)) building on a socio-cultural understanding of learning. Such theories emphasis the importance of context in mobile learning:

The common denominator is context: physical, technological, conceptual, social and temporal contexts for learning. ... Context, then, is a central construct of mobile learning. It is continually created by people in interaction with other people, with their surroundings and with everyday tools. (Kukulka-Hulme et al, 2009).

Frohberg, Göth and Schwabe (2009) built on the idea of using context as a classification criterion for mobile learning projects. However, their view of context is limited to “where the learning takes place” (ibid, p. 313) but nevertheless provides a useful starting point for determining innovation in mobile learning. Their classification, from least to most complex, is as follows:

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- *Independent context*: The mobile learning activity has no relationship to the learner's environment (e.g. doing drill-and-practice quizzes on a phone)
- *Formalizing context*: The mobile learning activity is dependent on a formal learning setting, e.g. classroom response systems.
- *Physical context*: The mobile learning activity is dependent on the location, e.g. museum guides
- *Socializing context*: The mobile learning activity is dependent on the social setting (e.g. a community of learners supporting each other through peer learning)

This discussion and exemplification of mobile learning in the document can be characterised by the first two classifications. As noted by Frohberg, Göth and Schwabe (2009), such forms of mobile learning have very little pedagogical innovation. This undermines the rationale for their development. Why should mobile learning interventions that offer very little extra over convention approaches be funded? The Janala case study works because it leverages the audio affordances of mobile phones needed to support language learning.

While the reports do not take a contextual view of mobile learning, some of the case studies presented in the GSMA (2010) document do. One such case is the Yoza/M4Lit project funded by the Shuttleworth Foundation to support reading by South African youth. The stories were developed in a participatory manner, and the social aspect of learning is emphasised with reader interaction supported via links with the MXit social

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network. Referring again to Roschelle's research here, mobile learning applications become "powerful educational interventions" through leveraging the key things that mobile phones do well while supporting existing social practices.

However, overall it can be claimed that where the reports discuss more innovative pedagogical approaches that could be potentially underpinned by the latest mobile learning research, they again take a techno-centric stance:

Portable device form factors are rapidly evolving. Increased availability and penetration of smart portable devices with advanced functionalities, such as accelerometers that sense motion, will lower costs and open a world of new possibilities for mEducation solutions (McKinsey-GSMA, 2012, p. 4)

There is no effort to understand how mobile learning design can incorporate such technical innovation. This is perhaps not surprising, given the complex nature of this challenge.

## **Discussion**

Mobile learning in the majority world is a nascent area of research. There are clear differences in approaches between the corporate and academic communities that need to be addressed. This purpose of this chapter has been to highlight some of these issues in support of productive future dialogue and collaboration. Three key issues emerge from the analysis presented so far: transformation, scale and sustainability.

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## **Transformation**

Mobile learning is viewed in the reports as having a transformation potential:

“Mobile technology’s power to transform education is difficult to overstate, given the importance and impact of learning that takes place outside a traditional classroom environment.” (McKinsey-GSMA, 2012, p.4)

This focus on transformation outside of formal schooling can be linked to two contrasting approaches in the literature. Within the mobile learning community, there is general support for this stance, tapered with the need to support teachers’ professional development in the use of mobile learning in the classroom:

It is important to consider the perspective of teachers (at all education levels) and the opportunities they have for professional development in this area of technology use. At European and individual state level, there appears to be little teacher development or training activity addressing mobile learning. (Kukulka-Hulme et al., 2009, p. 25)

However, more serious concerns are raised by those researchers working in education and development, in particular with respect to ensuring equitable access to educational opportunities as exemplified by the access discussion in this chapter. In general too, the GSMA frame transformation as occurring because of technical innovation and availability of mobile phones and new technologies. In contrast, many education researchers prefer to view transformation change as a bottom up process driven by understandings of existing structures, barriers and social circumstances. Each approach has its own merits and both are needs if mobile learning is to be pedagogically

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successful in the majority world.

### **Scale**

One determinant of the power of mobile learning for the GSMA is its ability to scale through the geographical reach of mobile phone networks. As such, many projects exemplify this approach through mobile learning applications that have the potential to be used by millions of people and are easily replicable by mobile phone network operators in different countries. Where scale is a concern of educational researchers (although, for some it is not) the approach of the GSMA contrasts with their position. Particularly, for educational researchers working in development, issues of scale are directly related to the formal education system. Scale should be achieved by working to support the formal educational systems of countries in a way that make learning meaningful to students. Equity is a key driver here, as exemplified by the debates regarding who – public and private – places what values on which aspects of education.

### **Sustainability**

The sustainability of mobile learning projects is a key motivation for both the private and academic sectors. However, their approach to the problem differs. The private sector focuses on the need to make mobile learning interventions sustainable by making them cost-effective. The well-made argument is that if learners place enough value on mobile learning, they will pay for it just like any other service. This will make the intervention viable in the long term.

In general, the education community approaches sustainability from a different angle.

They work from the premise that if an intervention directly addresses the needs of

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learners in a deep manner, is designed to work well within the context of use and engages learners in meaningful forms of participation, then it will be sustainable. Thus, mobile learning interventions are often designed in a participatory manner (Kensing and Blomberg, 1998) that emphasises the role of the learners in the design and development of the tools they will use.

## **Conclusion**

Mobile learning in the majority world is a nascent area of research and so can be developed along many parallel avenues informed by corporate needs, development agendas or educational research, amongst others. However, none of these are sufficient. This chapter has argued that mobile learning in the majority world needs to draw more on the large body of mobile learning research available but only where appropriate. It needs to be open to working with the corporate sector, while not necessarily being lead by their understanding of what learning and education should be. Perhaps, most importantly though, it needs to work from a development perspective to ensure that interventions are sustainable and directed towards improving the lives of marginalised learners.

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